



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,083	10/16/2003	Ibrahim Sendijarevic	TRPI 0103 PUSP	9091
22045 7590 01/26/2007 BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			EXAMINER PATTERSON, MARC A	
			ART UNIT	PAPER NUMBER
			1772	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

.10/687,083

Applicant(s)

SENDIJAREVIC ET AL.

Examiner

Marc A. Patterson

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-11,13,14 and 26-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-11,13,14 and 26-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/12/06.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

WITHDRAWN REJECTIONS

1. The 35 U.S.C. 103(a) rejection of Claims 1, 3, 5 – 11, 13 – 14 and 26 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1), of record on page 2 of the previous Action, is withdrawn.

2. The 35 U.S.C. 103(a) rejection of Claims 27 – 28 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1) and further in view of Hayashi et al (U.S. Patent No. 5,049,591), of record on page 2 of the previous Action, is withdrawn.

3. The 35 U.S.C. 103(a) rejection of Claims 29 – 30 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1) and further in view of Chaffanjon et al (U.S. Patent No. 5,594,097), of record on page 2 of the previous Action, is withdrawn.

NEW REJECTIONS

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 5 – 11, 13 – 14 and 26 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Hayashi et al (U.S. Patent No. 5,049,591) and Schwarz (U.S. Patent No. 3,661,860).

With regard to Claim 1, Schneider discloses a protective packaging for protecting an article (a object; column 3, lines 15 – 18; Figures 2 – 3) comprised of a foam structure (column 3, lines 15 – 18) conforming to a portion of article for protecting the article (column 7, lines 15 – 19); the foam comprises polyurethane foam (column 5, lines 12 – 16). Schneider fails to disclose a foam comprising a shape memory foam that is crosslinked, hydrophobic and has a glass transition temperature, and that is comprised of a structure of polyurethane foam being the reaction product of reacting an isocyanate and a polyol, and wherein the structure has a characteristic such that when the structure in an original shape is deformed or compressed above the glass transition temperature to produce a deformed or compressed shape and cooled in the compressed shape below the glass transition temperature the structure retains the compressed shape without the need of external forces and when the temperature is raised above the glass transition temperature the structure returns substantially to the original shape.

Hayashi et al teach a polyurethane foam (column 2, lines 33 – 35) which is a shape memory foam (column 1, line 65) and that has a glass transition temperature (column 2, line 13) and that is the reaction product of reacting an isocyanate and a polyol (column 2, lines 53 – 68) and that is crosslinked (column 3, line 20) for the purpose of using a foam that is resilient (column 1, lines 10 – 12). One of ordinary skill in the art would therefore have recognized the

advantage of providing for the polyurethane foam of Hayashi et al in Schneider, which comprises a polyurethane foam, depending on the desired resilience of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a foam comprising a shape memory foam that is crosslinked and has a glass transition temperature, and that is comprised of a structure of polyurethane foam being the reaction product of reacting an isocyanate and a polyol in Schneider in order to obtain a packaging that is lightweight as taught by Hayashi et al. The isocyanate taught by Hayashi et al is diphenylmethane diisocyanate (column 2, line 57) and the polyol taught by Hayashi et al is polypropylene glycol (column 2, line 66); Schwarz teaches that a polyurethane that is made by reacting polypropylene glycol and diphenylmethane diisocyanate is hydrophobic (column 1, lines 25 – 37); the polyurethane taught by Hayashi et al is a shape memory polyurethane as stated above, and therefore has a characteristic such that when the structure in an original shape is deformed or compressed above the glass transition temperature to produce a deformed or compressed shape and cooled in the compressed shape below the glass transition temperature the structure retains the compressed shape without the need of external forces and when the temperature is raised above the glass transition temperature the structure returns substantially to the original shape.

With regard to Claim 3, as stated above, the foam disclosed by Hayashi et al is crosslinked, and therefore thermoset.

With regard to Claim 5, as stated above, the polyol disclosed by Hayashi et al is polypropylene glycol, therefore a polyether polyol.

With regard to Claim 6, the polyol taught by Hayashi et al is polypropylene glycol, as stated above, therefore has an average functionality of between 2 and 4.

With regard to Claim 7, the isocyanate taught by Hayashi et al is diphenylmethane diisocyanate, as stated above, and therefore has an average functionality of between 2 and 3.

With regard to Claims 8, 11 and 14, the foam taught by Hayashi et al is produced by reacting the isocyanate with the polyol and a chain extender (column 3, line 1), and is therefore compressible to less than 50% of the original volume.

With regard to Claim 9, the foam taught by Hayashi et al has an open cell structure (column 2, line 2).

With regard to Claim 10, Hayashi et al teaches a glass transition temperature of less than 21 degrees Celsius (column 2, line 49).

With regard to Claim 13, the foam disclosed by Schneider is encased in a film (contained in an impervious bag comprising polyethylene, therefore a film comprising polyethylene; column 2, lines 34 – 35; column 4, lines 53 – 61).

With regard to Claim 26, the foam taught by Hayashi et al has a glass transition temperature, as discussed above, and therefore has a temperature above which its structure is rigid and below which its structure is elastic.

With regard to Claims 27 – 28, the polyol taught by Hayashi et al is a polyester polyol (1,4-butane glycol adipate; column 2, lines 65 – 68).

With regard to Claim 31, the foam taught by Hayashi et al is free of isocyanate (column 2, line 35).

6. Claims 29 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Hayashi et al (U.S. Patent No. 5,049,591) and Schwarz (U.S. Patent No. 3,661,860) and further in view of Chaffanjon et al (U.S. Patent No. 5,594,097).

Schneider, Hayashi et al and Schwarz disclose a shape memory foam comprising a polyether polyol reacted with an isocyanate as discussed above. With regard to Claims 29 – 30, Schneider, Hayashi et al and Schwarz fail to disclose a shape memory foam comprising a polycarbonate polyol reacted with an isocyanate.

Chaffanjon et al teaches the interchangeable use of polyether polyol and polycarbonate polyol (column 5, lines 44 – 47) for reaction with isocyanate (column 5, lines 35 – 43) in the making of a shape memory foam (a foam which exhibits substantial shape recovery after deformation; column 3, lines 13 – 15) for the purpose of obtaining a foam which has good processing properties (column 2, lines 1 – 4). One of ordinary skill in the art would therefore have recognized the advantage of providing for the polycarbonate polyol of Chaffanjon et al in Schneider, Hayashi et al and Schwarz, which comprises a shape memory foam, depending on the desired processing properties of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for polycarbonate polyol in Schneider, Hayashi et al and Schwarz in order to obtain a foam which has good processing properties as taught by Chaffanjon et al.

ANSWERS TO APPLICANT'S ARGUMENTS

7. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 1, 3, 5 – 11, 13 – 14 and 26 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1), 35 U.S.C. 103(a) rejection of Claims 27 – 28 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1) and further in view of Hayashi et al (U.S. Patent No. 5,049,591) and 35 U.S.C. 103(a) rejection of Claims 29 – 30 as being unpatentable over Schneider (U.S. Patent No. 3,415,364) in view of Helsemans et al (U.S. Patent No. 5,418,261) and Rosthauser (U.S. Patent No. 6,224,800 B1) and further in view of Chaffanjon et al (U.S. Patent No. 5,594,097), of record in the previous Action, have been considered and have been found to be persuasive. The rejections are therefore withdrawn. The new rejections above are directed to Claims 1, 3, 5 – 11, 13 – 14 and 26 – 31.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marc A. Patterson 1/12/07
Marc A. Patterson, PhD.
Primary Examiner
Art Unit 1772